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CANADA'S WAR EFFORT FOR THE HEALTH OF HER PEOPLE

JAMES J. McCANN

STUDY OF FAMILY CONTACTS WITH TUBERCULOUS LESIONS

H. I. ANDERSON

**FALLACY OF CALCULATING RATES OF BIRTHS AND DEATHS
ACCORDING TO PLACE OF OCCURRENCE**

EUGENE GAGNON

VALUE OF THE ANNUAL REPORT OF THE MEDICAL OFFICER

I. EDGAR DAVEY

HIGH SCHOOL MEDICAL INSPECTION IN BURLINGTON, ONT.

A. H. SPEERS

PEDICULOSIS—A NEW TREATMENT

LLOYD P. MacHAFFIE

•

Index to Volume 32, 1941

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CANADIAN PUBLIC HEALTH JOURNAL

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DECEMBER, 1941

Canada's War Effort for the Health of Her People*

JAMES J. McCANN, M.P., M.D.

*President-Elect, Canadian Public Health Association
Renfrew, Ontario*

CANADA'S war effort for the health of her people is an important and integral part of Canada's "total war" and our "all-out effort for the retention of our freedom and liberties, and for the defence of our homes, our democratic institutions and even our very lives, against the treachery and barbarism of the world's most brutal tyrants and murderers."

To win, we must be strong, morally, mentally and physically. It is not enough to have the will to win nor to be financially strong, nor to have all the instruments of war; unless we have men who are physically and mentally strong—men and women in good health, to manufacture the munitions of war, men and women physically strong to handle these instruments of war, we cannot give full force to our national war effort. So it is that, at this time, the health of Canada's manhood is such an important factor in our war effort; in fact it may be the determining factor in whether we win or lose.

Canada's position in the world today depends on her man-power. Our confidence that we shall win this war rests upon our conviction, not only that our cause is just, but also that the quality of our man-power is superior to that of our enemies; and the quality of our man-power depends upon the physical and mental fitness of the individual man and woman who is a living part of Canada, whether he be in our defence forces, the factory, the farm or the home.

Let me quote the opinion of three very prominent public men on this continent who speak with authority:

*An address presented at a luncheon of health workers of Canada at the Canadian National Exhibition, Toronto, September 5, 1941.

President Roosevelt says:

"Today the need for conservation of health and physical fitness is greater than at any time in the nation's history . . . The total defence that we have heard so much about of late, that total defence which this nation seeks, involves a good deal more than building airplanes, ships, guns and bombs . . . We cannot be a strong nation unless we are a healthy nation. And so we must recruit not only men and materials, but also knowledge and science in the service of national strength."

The Hon. Ian A. Mackenzie, Minister of Pensions and National Health, says:

"It is the emphatic will of our Canadian people, expressed throughout our whole democratic system of government, that the care of the public health shall be a first concern of government.

"Our right to conduct our affairs with a primary regard for the health and welfare of our people is the very thing for which we have gone to war. The all-embracing measures necessary for the successful conduct of warfare must not be permitted to weaken our efforts in the cause of public and individual health."

Thomas Parran, Surgeon-General of the United States Public Health Service, says:

"For what cause is this nation arming if not on behalf of the men, women and children who compose it? Their physical fitness, their freedom from preventable disease, their morale or mental stamina, will determine almost entirely the effectiveness of all other defence efforts. Important in the easy days of peace without a cloud on the horizon, it is urgent now that the people of this nation be physically tough, mentally sound and morally sound."

The utterances of the President and Dr. Parran can be applied equally well to this country as to their own, and all three bear testimony to the truth of Disraeli's statement: "The health of the people is really the foundation upon which all their happiness and all their powers as a state depend." Our first consideration is the health and welfare of our fighting forces. These are being well provided for, both overseas and at home.

The Royal Canadian Army Medical Corps provides medical and dental services for the personnel of our armed forces—the Navy, the Air Force, and the Land Forces. At the present time there are, for the Army alone, 1,024 medical officers, 718 of whom are in Canada and 306 overseas. There are 673 nursing sisters, 437 in Canada and 236 overseas. For the Air Force there are 319 medical officers, all of whom, except eight, are in Canada. The separate medical service for the R.C.A.F. was set up early in 1941, upon the advice of the Royal Army Medical Corps. In the Navy there are ninety-four medical officers, seventy in Canada and twenty-four overseas. This personnel of all three services includes specialists, such as consultants in medicine, surgery, hygiene, and radiology.

At the present time there are seventy-two military hospitals on the home

war establishment and two in Newfoundland, with a total capacity of over 5,900 beds. Thirty-three of these hospitals are connected with training centres.

For prisoners of war and internees, there are 27 hospitals, each containing from 10 to 50 beds, with a total capacity of 500 beds.

In addition, Canada has more than a thousand hospitals, containing one hundred thousand beds. These, of course, are for use of the civilian population, but in war-time they can be used as auxiliary equipment for our fighting forces.

For our Armed Forces overseas, we have seventeen field ambulance units and two general hospitals of 1,200 beds each, both overseas; we have also four general hospitals of 600 beds each, two of which are overseas, one neurological hospital and one convalescent depot. The number of beds available overseas at present is in excess of 5,000.

In addition to the medical forces, an efficient dental corps has been established. It is made up of 435 dental officers and assistants, and is operating 235 clinics in Canada and overseas. To May 31, 1941, they had examined 311,000 men, and the number of dental operations performed was more than 1,600,000; the value of these operations, \$2,800,000.00. In the last war, in France daily, 2,000 to 5,000 men were off duty looking for dental officers; that meant that half a brigade was idle daily.

Large sums of money are being expended on the most modern up-to-date equipment and supplies which can be bought to keep our men fit for the test to come. Our stream-lined warfare has been extended to the physical welfare of the forces.

Purchases made by the medical section cover a wide range, and monthly they are increasing in volume and dollar value. The May figure represents an increase of 200 per cent over August, 1940. Purchases during the last quarter have exceeded \$2,000,000.00. Since the beginning of the war, more than \$500,000 has been expended on X-ray equipment for Canadian military hospitals in the Dominion and overseas, while some 110 tons, or more than 3,500,000 ounces, of drugs were contracted for during the first quarter of the current year. Tablets purchased, in which are concentrated a variety of preventive and curative medicines, numbered 30,300,000 during the same period.

Bandages are another important item. If all bandages bought during the first quarter of 1941 were cut into one-inch strips, the total of these would have exceeded 500,000,000.

Since the start of the war, the medical section has contracted for hospital beds in great number, totalling 26,000 units.

Other essential supplies received in large quantities are disinfectants and water sterilizing powders. The latter are important in making available for troops pure drinking water at any point during a route march.

Physio-therapy departments have been established in the principal military hospitals in Canada and abroad.

There is, too, the new foreign-body localization system which plots, by three simple automatic readings, the exact location of shrapnel in the body in relation to skin surface. The importance of this is evident.

Canada is using the newest type of field X-ray units. With photographic apparatus, developing dark room, and all other necessary facilities under the roof of one small tent, each unit is complete in itself. Incidentally, it is the only type being used by the United States Army for field service.

The pneumonia mortality rate in the armed forces has been greatly reduced by the use of sulphathiazole tablets, 10,000,000 of which have been purchased during the past twelve months. The mortality rate from cerebro-spinal meningitis has been cut from 60 per cent in the last war to 1.75 per cent.

Speeding up the inoculation of troops and reducing to a minimum the after-effects is achieved by a new method of injecting both typhoid-paratyphoid vaccine and tetanus toxoid at the same time.

The total of Canada's armed forces at the present time, if we include the Reserve Army trained for home defence, is approximately 470,000. To April 30, 1941, according to Brigadier Gorsaline, 328,325 recruits had X-ray examination of chest for enlistment in the Canadian Army, R.C.A.F. and Royal Canadian Navy, and of these 5,273 were rejected (1.6 per cent). Approximately 58 per cent of those who were rejected were shown to have pulmonary tuberculosis and 21 per cent other lung disease.

However, of those drafted we find that medical examination rejected approximately 12 per cent, i.e. one out of eight. In the recent recruiting campaign in which 32,000 were required, about 48,000 offered their services; 35,000 were accepted and the remainder rejected as medically unfit. That is an unusually high proportion. We ask ourselves the reason why. The answer is not far to seek. Probably old heart or kidney lesions, the result of diphtheria or scarlet fever or measles, or ocular defects or stomach ulcers that either were preventable or could have been cured had they had available the benefits of modern medical science.

The available manpower for our armed forces and industry is limited and must be conserved. In the age group 20-39, the reservoir of military manpower is 1,800,000; of these probably 600,000 are physically unfit and 300,000 are in active service. This brings our pool down to 900,000. When we deduct from this those in industry, and others who for one reason or another are not desirable for enlistment, we have left available about 500,000.

That reservoir is going to be quickly used up. I bring this phase of the matter to your attention in order to emphasize the necessity of conserving the health of our young men of military age.

What further measures can be taken to achieve that end? I suggest that as a protection against diphtheria all our armed forces be given diphtheria toxoid. This is almost imperative when we realize that a great body of our troops are or will be in England where last year there were more than 60,000 cases of diphtheria, whereas we in this country have greatly reduced its incidence.

I suggest secondly that all our fighting forces have a serological test for syphilis, both on entering the ranks and on discharge. They are entitled to this protection. If found to have venereal disease, on enlistment or on being

drafted, there is no reason why they cannot have treatment and still continue their training.

I suggest further, in view of our shortage, or rather limitation, of manpower, that one of three things will have to be done: The Department of National Defence must lower its present standards, or it must undertake the physical improvement of the men after induction, or it must sponsor a program of voluntary health improvement. I am inclined to think that the present standard of physical fitness will be maintained, and it is unlikely that the Defence authorities will undertake rehabilitation after the induction of men into the forces; but there is no reason why remediable physical handicaps cannot be attended to in civil or military hospitals, at Government expense, and such men be reexamined, reclassified and listed later for military service. By adopting such a policy the Government could, in a measure, correct its sins of omission.

At the present time more people are employed in industry than at any other time in the history of Canada. It is estimated that about one-half of the persons employed in manufacturing in the Dominion are now engaged more or less directly on production associated with war-time needs. The health of these workers is all important. In order to have a maximum efficiency, it must be seen that their hours of work are not too long, their working conditions good, their nutritional requirements adequately met, and their home environment satisfactory.

The Government has taken steps, through the Division of Industrial Hygiene in the Department of Pensions and National Health, to improve and preserve the health of employees in war industry. Working conditions in defence plants are carefully supervised. Advice on occupational hazards and disease is circulated to employers and employees, and Workmens' Compensation Boards are supplied with information concerning new occupational diseases arising out of war manufacturing. Laboratory research on occupational hazards is carried out.

What then, you ask, is our war effort for the health of the rest of our people—the civilian population? Sometimes I think it is just a sham battle. Those engaged in health work know the real conditions and the real needs, and while they marvel at what has been accomplished, they look with apprehension on the task that lies before them.

It is estimated that, on any one day, Canada has 50,000 wage earners idle through illness and that the cost of ill-health to the Canadian people is over 250 million dollars a year, all of this a handicap to our national war effort.

We feel that we have conquered diphtheria by toxoid, yet this nation loses an average of 300 children every year from diphtheria.

In 20 years, 1916-1937, there were forty-seven typhoid epidemics with 271 deaths, despite the fact that known methods of milk pasteurization and water purification will eliminate typhoid fever. It is encouraging to record that in the metropolitan city of Montreal, since pasteurization was adopted, the number of infant deaths from intestinal diseases has dropped from more than 1,800 every year to 200, just one-ninth the former total.

So, too, with venereal disease; while much has been accomplished, there are still in excess of 500,000 syphilitics in this country.

There are over 40,000 in our mental institutions, many as a result of early infections from diseases that are both preventable and curable.

I could go on and tell you of maternal and infant deaths and of the ravages and costs of tuberculosis and give you comparative records and costs of other countries. The story is well known. The great question is: Are we on the right path? Have we the proper solution of these problems? Are our policies the correct ones? Are they the ones best calculated to produce results?

I am of the opinion that the 50,000 health workers must be increased tenfold. We must enlist the support of more voluntary assistants. The public must be educated to the benefits of better health and of the opportunities available; this is our strongest weapon. Let us use the press, the radio, public addresses, the screen and every other armament at our disposal to tell the public that disease is costly, that a great deal of it is preventable, and that much of it is curable.

Medical science is far in advance of the public's financial ability to avail themselves of its benefits. The problem is to bridge that gap which separates them. Let us create a public opinion that will demand a national health policy based on the conviction that the essential post-war health of our people in Canada depends upon our carefully planned action during the war. I suggest that that national policy should include:

(1) Co-operation with the Provincial Departments of Health and, through them, with municipal health departments.

(2) Grants-in-aid to the provinces. At present the only grant made by the Federal Government is one of \$50,000 for venereal disease control. The policy of distribution should be to allot a preponderance of Federal funds to those provinces and communities with the most meagre financial resources and with the most urgent health problems.

(3) Public health education and the setting aside of one day a year to be known as National Health Day. Public health education should include leadership in the nutrition education campaign. I need not stress the need for such a campaign, especially in war-time, both for the armed forces and the civilian population. Women's organizations have done excellent work in this line, especially the women of Toronto and vicinity, but it is time that the Federal and Provincial authorities jointly get behind this campaign and appoint well-trained paid nutritionists who will give leadership and instructions to these lay organizations, so that they may know how best to keep their families and children in the event of emergency.

(4) Extension of the work of the Associate Committee on Medical Research of the National Research Council, whose function is to advance medical research.

(5) Re-establishment of the Division of Venereal Disease Control in the Department of Pensions and National Health.

(6) Subsidizing of full-time health services.

- (7) Medical care of the under-privileged.
- (8) Increased grants-in-aid to the voluntary agencies who are carrying on what really has been government work.
- (9) A comprehensive scheme that will insure social and economic betterment to the under-privileged classes in the country.

Sickness and poverty have always gone hand-in-hand, but I believe that poverty is the cause of more illness than the result of it, and that our greatest problem for the solution of our difficulties is social and economic. The new world order has got to give a better and more equitable distribution of wealth, and we must bring about the development of a great national scheme of social security by which the masses of our people shall never again know those fears that come from insecurity and poverty and want and distress. Let it be said in all fairness that governments, both Provincial and Federal, are tending toward social security, as evidenced by social legislation such as old age pensions, mothers' allowance, health insurance, cost-of-living bonus, unemployment insurance, workmen's compensation, and regulation of hours and labour, etc.

We are living in momentous and perilous times; while we may have grounds for restrained optimism as to the result of events of the war over the past few weeks, there is no room for complacency. Let health workers carry on with renewed vigour and enthusiasm, until final victory is achieved and the dawn of a brighter and better day arrives.

A Study of 345 Family Contacts with Tuberculous Lesions

H. J. ANDERSON, M.D.

Fort Qu'Appelle Sanatorium, Fort Qu'Appelle, Saskatchewan

THIS study concerns 345 family contacts who developed tuberculosis. The group is selective in as much as it contains only those contacts who have contracted tuberculosis from a known source regarding which we have adequate information.

The main reason for this investigation was to determine, if possible, how long family contacts should be "followed up" under conditions maintaining in Saskatchewan. This problem has been thoroughly studied at several provincial centres and routine procedures adopted on the basis of facts discovered. In Saskatchewan the disease is discovered early—40 per cent in the minimal stage; the infection rate is low and there is less than one per cent increase with each year of life; the tuberculosis death rate, excluding Indians, is less than 20 per 100,000; and spreaders are promptly segregated, owing to free and ample accommodation for treatment. During the past two decades the tuberculosis death rate has been cut in two. The infectivity of spreaders in contact families has been greatly reduced owing to early diagnosis and segregation, and as a result the proportion of contacts found to have lesions on first examination has been reduced from 8.4 in 1931 to 2.2 in 1940, and the number of contacts found with active tuberculosis in these respective years lowered from 238 to 88. A working routine that would be adequate for the examination of contacts in a province like Saskatchewan, where the foregoing conditions exist, might not be suitable in a heavily infected community where the infection incidence and the death rate are high, and where facilities for segregation are limited and the population perhaps less co-operative.

During the last ten years our anti-tuberculosis program has been modified from time to time in keeping with changing epidemiological aspects. As our whole tuberculosis problem improves, so it becomes necessary to revise, adjust and adapt our preventive campaign. Nowhere is this more important than in the establishment of a routine for observation of contacts, for it is in this group that dead wood quickly accumulates.

SEX OF CONTACT: INFECTIVITY OF SOURCE

Of the 345 family contacts studied 308 were exposed to open pulmonary tuberculosis; twenty-nine to closed or clinical cases, and eight to non-pulmonary tuberculosis. The group was almost equally divided between males and females, there being 166 males and 179 females. However, in the age period 10-24 years the females appeared to suffer more than the males, the proportion being

TABLE 1
RELATION BETWEEN AGE OF CONTACT WHEN LESION DISCOVERED, AND
INFECTIVITY OF SOURCE WHEN CONTACT BROKEN—BY AGE AND SEX

Age of Contact When Lesion Discovered	Exposed to				Age Group	Sex	Total	Number %	
	Sex	Total	"O"	"C"				Dead	Dead
Under 1 yr.	M.	6	5	1					
	F.	4	4	0					
1	M.	4	4	0					
	F.	1	1	0					
2	M.	7	6	1					
	F.	3	3	0					
3	M.	2	2	0					
	F.	5	4	1					
4	M.	0	0	0					
	F.	2	2	0	0 - 4 yrs	M. 19) F. 15)	6	17.7	
5	M.	6	5	1					
	F.	3	3	0					
6	M.	6	4	2					
	F.	1	0	1					
7	M.	5	5	0					
	F.	10	10	0					
8	M.	6	4	2					
	F.	1	1	0					
9	M.	5	5	0	5 - 9 yrs	M. 26) F. 18)	0	--	
	F.	3	2	1					
10	M.	4	4	0					
	F.	5	5	0					
11	M.	3	3	0					
	F.	6	6	0					
12	M.	4	4	0					
	F.	9	8	1					
13	M.	6	5	1					
	F.	11	11	0					
14	M.	5	4	1	10 - 14 yrs	M. 22) F. 37)	4	6.8	
	F.	6	4	2					
15	M.	2	1	1					
	F.	10	9	1					
16	M.	5	4	1					
	F.	8	6	2					
17	M.	9	9	0					
	F.	8	7	0					
18	M.	6	6	0					
	F.	6	5	1					
19	M.	9	6	2	15 - 19 yrs	M. 31) F. 40)	9	12.7	
	F.	8	7	0					
20	M.	5	4	1					
	F.	10	9	1					
21	M.	7	6	0					
	F.	6	5	0					
22	M.	9	7	1					
	F.	6	6	0					
23	M.	3	3	0					
	F.	8	8	0					
24	M.	4	4	0	20 - 24 yrs	M. 28) F. 37)	5	7.7	
	F.	7	5	2					
25	M.	5	5	0					
	F.	6	6	0					
26	M.	1	1	0					
	F.	2	2	0					
27	M.	5	4	1					
	F.	4	4	0					
28	M.	4	4	0					
	F.	4	4	0					
29	M.	2	1	1	25 - 29 yrs	M. 17) F. 19)	2	5.5	
	F.	3	3	0					
30 - 65	M.	21	21	0		M. 21) F. 13)	2	5.9	
	F.	13	12	1					
Total	M.	166	146	17					
	F.	179	162	14					
	T.	345	308	31					
					Total	M. 166) F. 179)	28	8.1	

"O" = open case; "C" = clinical case; "HP" = non-pulmonary tuberculosis.

2.5 to 2. In the first decade of life and in the age period 25 years and over, the males appeared to have a less favourable experience than the females. (See table 1.)

DURATION OF EXPOSURE

The estimation of the duration of exposure to the tuberculous source is, of course, difficult to determine. A careful perusal of the history, noting particularly the onset of expectoration and cough, together with the X-ray appearance of the spreader on discovery, was used as the index for the length of this period. By this method of calculation it was found that 34 per cent were discovered during the first year of exposure, over half (57.2 per cent) of the cases were discovered during the first two years of exposure, and 66.2 per cent during the first three years of exposure; 91.6 per cent of the lesions were discovered in the first seven years after exposure. This was true in a varying degree for all age groups. The time interval between exposure to clinical or non-pulmonary disease and the discovery of the lesions was not noticeably longer than in those exposed to known bacillary disease. The average period between exposure and discovery of lesion as determined in the whole group was 2.96 years. (See table 2.)

TABLE 2

TIME RELATION BETWEEN EXPOSURE OF CONTACT AND DISCOVERY OF LESION IN FAMILY CONTACTS WITH TUBERCULOSIS BY AGE, AND THE PROPORTION OF LESIONS DISCOVERED YEAR BY YEAR AFTER EXPOSURE

Age of Contact When First Exposed	YEAR AFTER EXPOSURE IN WHICH LESION DISCOVERED IN CONTACT																
	1st		2nd		3rd		4th		5th		6th		7th		8 to		
	Yr.	%	Yr.	%	Yr.	%	Yr.	%	Yr.	%	Yr.	%	Yr.	%	26th Yr.	Total	
0 - 4 years	26	40.7	13	20.3	5	7.8	2	3.1	6	9.4	2	3.1	0	--	10	15.6	64
5 - 9 years	22	45.8	6	12.5	3	6.2	4	8.3	2	4.1	5	10.4	0	--	6	12.5	48
10 - 14 years	23	30.3	17	22.4	5	6.6	4	5.2	11	14.5	9	11.8	4	5.2	3	3.9	76
15 - 19 years	21	35.6	13	22.0	6	10.1	4	6.8	5	8.5	4	6.8	2	3.4	4	6.8	59
20 - 24 years	13	23.6	21	38.2	6	10.9	6	10.9	2	3.6	3	5.4	0	---	4	7.3	55
25 - 29 years	4	17.4	8	34.8	3	13.0	4	17.4	1	4.3	0	--	1	4.3	2	8.7	23
30 - 65 years	8	40.0	2	10.0	3	15.0	3	15.0	1	5.0	2	10.0	1	5.0	0	---	20
Total	117	34.0	80	23.2	31	9.0	27	7.8	28	8.1	25	7.2	8	2.3	29	8.4	345

PERIOD BETWEEN POSITIVE TUBERCULIN TEST AND DISCOVERY OF LESION

Systematic tuberculin testing was done on a portion of this group developing lesions—fifty cases in all. These were studied in an endeavour to determine the period between infection and disease. It was found that thirty-seven or 74 per cent of lesions developed within one month to one year following the demonstration of a positive tuberculin reaction, nine or 18 per cent within the second year, and two or 4 per cent in each of the third and fifth years. It need scarcely be pointed out that these numbers are too small to justify any conclusion, but it is interesting to note that the findings are similar to those found in a group of twenty-two nurses under close supervision who developed tuberculosis.

In the group of lesions discovered from one month to a year following demonstration of a positive tuberculin reaction twenty-eight or 75.7 per cent had minimal tuberculosis; nine had moderately advanced disease, and of these, three were bacillary cases.

INTERVAL BETWEEN BREAKING OF CONTACT AND DEVELOPMENT OF LESION

Important from the standpoint of determining a routine for contact follow-up was the study of the time interval between breaking of contact and the discovery of lesions. In this group the family contacts did not come under observation until the source was discovered.

Of the 345 studied 62.4 per cent were discovered during the first year after contact was broken, 14.6 per cent in the second year, and 7.5 per cent in the third year; that is, 84.4 per cent in the first three years, and almost 96 per cent within the first seven years. The average interval between breaking of contact and development of lesion in this group was 1.54 years. (See table 3.)

TABLE 3

TIME RELATION BETWEEN BREAKING OF CONTACT AND DISCOVERY OF LESION BY AGE IN 345 FAMILY CONTACTS WITH TUBERCULOSIS, AND THE PROPORTION OF LESIONS DISCOVERED YEAR BY YEAR AFTER CONTACT WAS BROKEN

Age Group		Contact		1st		2nd		3rd		4th		5th		6th		7th		8th		9th		10th		11th		12th		13th		14th		15th		16th		17th		18th		19th		20th		21st		22nd		23rd		24th		25th		26th		27th		28th		29th		30th		31st		32nd		33rd		34th		35th		36th		37th		38th		39th		40th		41st		42nd		43rd		44th		45th		46th		47th		48th		49th		50th		51st		52nd		53rd		54th		55th		56th		57th		58th		59th		60th		61st		62nd		63rd		64th		65th		66th		67th		68th		69th		70th		71st		72nd		73rd		74th		75th		76th		77th		78th		79th		80th		81st		82nd		83rd		84th		85th		86th		87th		88th		89th		90th		91st		92nd		93rd		94th		95th		96th		97th		98th		99th		100th		101st		102nd		103rd		104th		105th		106th		107th		108th		109th		110th		111st		112nd		113rd		114th		115th		116th		117th		118th		119th		120th		121st		122nd		123rd		124th		125th		126th		127th		128th		129th		130th		131st		132nd		133rd		134th		135th		136th		137th		138th		139th		140th		141st		142nd		143rd		144th		145th		146th		147th		148th		149th		150th		151st		152nd		153rd		154th		155th		156th		157th		158th		159th		160th		161st		162nd		163rd		164th		165th		166th		167th		168th		169th		170th		171st		172nd		173rd		174th		175th		176th		177th		178th		179th		180th		181st		182nd		183rd		184th		185th		186th		187th		188th		189th		190th		191st		192nd		193rd		194th		195th		196th		197th		198th		199th		200th		201st		202nd		203rd		204th		205th		206th		207th		208th		209th		210th		211st		212nd		213rd		214th		215th		216th		217th		218th		219th		220th		221st		222nd		223rd		224th		225th		226th		227th		228th		229th		230th		231st		232nd		233rd		234th		235th		236th		237th		238th		239th		240th		241st		242nd		243rd		244th		245th		246th		247th		248th		249th		250th		251st		252nd		253rd		254th		255th		256th		257th		258th		259th		260th		261st		262nd		263rd		264th		265th		266th		267th		268th		269th		270th		271st		272nd		273rd		274th		275th		276th		277th		278th		279th		280th		281st		282nd		283rd		284th		285th		286th		287th		288th		289th		290th		291st		292nd		293rd		294th		295th		296th		297th		298th		299th		300th		301st		302nd		303rd		304th		305th		306th		307th		308th		309th		310th		311st		312nd		313rd		314th		315th		316th		317th		318th		319th		320th		321st		322nd		323rd		324th		325th		326th		327th		328th		329th		330th		331st		332nd		333rd		334th		335th		336th		337th		338th		339th		340th		341st		342nd		343rd		344th		345th		346th		347th		348th		349th		350th		351st		352nd		353rd		354th		355th		356th		357th		358th		359th		360th		361st		362nd		363rd		364th		365th		366th		367th		368th		369th		370th		371st		372nd		373rd		374th		375th		376th		377th		378th		379th		380th		381st		382nd		383rd		384th		385th		386th		387th		388th		389th		390th		391st		392nd		393rd		394th		395th		396th		397th		398th		399th		400th		401st		402nd		403rd		404th		405th		406th		407th		408th		409th		410th		411st		412nd		413rd		414th		415th		416th		417th		418th		419th		420th		421st		422nd		423rd		424th		425th		426th		427th		428th		429th		430th		431st		432nd		433rd		434th		435th		436th		437th		438th		439th		440th		441st		442nd		443rd		444th		445th		446th		447th		448th		449th		450th		451st		452nd		453rd		454th		455th		456th		457th		458th		459th		460th		461st		462nd		463rd		464th		465th		466th		467th		468th		469th		470th		471st		472nd		473rd		474th		475th		476th		477th		478th		479th		480th		481st		482nd		483rd		484th		485th		486th		487th		488th		489th		490th		491st		492nd		493rd		494th		495th		496th		497th		498th		499th		500th		501st		502nd		503rd		504th		505th		506th		507th		508th		509th		510th		511st		512nd		513rd		514th		515th		516th		517th		518th		519th		520th		521st		522nd		523rd		524th		525th		526th		527th		528th		529th		530th		531st		532nd		533rd		534th		535th		536th		537th		538th		539th		540th		541st		542nd		543rd		544th		545th		546th		547th		548th		549th		550th		551st		552nd		553rd		554th		555th		556th		557th		558th		559th		560th		561st		562nd		563rd		564th		565th		566th		567th		568th		569th		570th		571st		572nd		573rd		574th		575th		576th		577th		578th		579th		580th		581st		582nd		583rd		584th		585th		586th		587th		588th		589th		590th		591st		592nd		593rd		594th		595th		596th		597th		598th		599th		600th		601st		602nd		603rd		604th		605th		606th		607th		608th		609th		610th		611st		612nd		613rd		614th		615th		616th		617th		618th		619th		620th		621st		622nd		623rd		624th		625th		626th		627th		628th		629th		630th		631st		632nd		633rd		634th		635th		636th		637th		638th		639th		640th		641st		642nd		643rd		644th		645th		646th		647th		648th		649th		650th		651st		652nd		653rd		654th		655th		656th		657th		658th		659th		660th		661st		662nd		663rd		664th		665th		666th		667th		668th		669th		670th		671st		672nd		673rd		674th		675th		676th		677th		678th		679th		680th		681st		682nd		683rd		684th		685th		686th		687th		688th		689th		690th		691st		692nd		693rd		694th		695th		696th		697th		698th		699th		700th		701st		702nd		703rd		704th		705th		706th		707th		708th		709th		710th		711st		712nd		713rd		714th		715th		716th		717th		718th		719th		720th		721st		722nd		723rd		724th		725th		726th		727th		728th		729th		730th		731st		732nd		733rd		734th		735th		736th		737th		738th		739th		740th		741st		742nd		743rd		744th		745th		746th		747th		748th		749th		750th		751st		752nd		753rd		754th		755th		756th		757th		758th		759th		760th		761st		762nd		763rd		764th		765th		766th		767th		768th		769th		770th		771st		772nd		773rd		774th		775th		776th		777th		778th		779th		780th		781st		782nd		783rd		784th		785th		786th		787th		788th		789th		790th		791st		792nd		793rd		794th		795th		796th		797th		798th		799th		800th		801st		802nd		803rd		804th		805th		806th		807th		808th		809th		810th		811st		812nd		813rd		814th		815th		816th		817th		818th		819th		820th		821st		822nd		823rd		824th		825th		826th		827th		828th		829th		830th		831st		832nd		833rd		834th		835th		836th		837th		838th		839th		840th		841st		842nd		843rd		844th		845th		846th		847th		848th		849th		850th		851st		852nd		853rd		854th		855th		856th		857th		858th		859th		860th		861st		862nd		863rd		864th		865th		866th		867th		868th		869th		870th		871st		872nd		873rd		874th		875th		876th		877th		878th		879th		880th		881st		882nd		883rd		884th		885th		886th		887th		888th		889th		890th		891st		892nd		893rd		894th		895th		896th		897th		898th		899th		900th		901st		902nd		903rd		904th		905th		906th		907th		908th		909th		910th		911st		912nd		913rd		914th		915th		916th		917th		918th		919th		920th		921st		922nd		923rd		924th		925th		926th		927th		928th		929th		930th		931st		932nd		933rd		934th		935th		936th		937th		938th		939th		940th		941st		942nd		943rd		944th		945th		946th		947th		948th		949th		950th		951st		952nd		953rd		954th		955th		956th		957th		958th		959th		960th		961st		962nd		963rd		964th		965th		966th		967th		968th		969th		970th		971st		972nd		973rd		974th		975th		976th		977th		978th		979th		980th		981st		982nd		983rd		984th		985th		986th		987th		988th		989th		990th		991st		992nd		993rd		994th		995th		996th		997th		998th		999th		1000th		1001st		1002nd		1003rd		1004th		1005th		1006th		1007th		1008th		1009th		1010th		1011st		1012nd		1013rd		1014th		1015th		1016th		1017th		1018th		1019th		1020th		1021st		1022nd		1023rd		1024th		1025th		1026th		1027th		1028th		1029th		1030th		1031st		1032nd		1033rd		1034th		1035th		1036th	
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HOW LONG SHOULD CONTACTS BE FOLLOWED?

"How long should contacts be followed?" is a question being asked by tuberculosis workers today. Is it worth while following contacts beyond the third year after contact is broken, since this would discover 84 per cent of the cases?

It is our experience in Saskatchewan that the examination of positively reacting school children is relatively unprofitable as a case-finding project; we find only 0.5 per cent of lesions among these positive reactors. Comparable figures suggest that the proportion of positively reacting contacts who develop lesions seven years or more after breaking of contact amount to little more than that found among positively reacting school children. It would seem, therefore, that contacts should be examined, if not in the fourth year, at least in the fifth and seventh years after contact is broken; and that routine observation of contacts who have been separated from the source for seven years or more would be little or no more profitable as a case-finding project than the routine observation of positively reacting school children.

This is the reverse of what one would expect to find if childhood infection were a major factor in contributing to young adult breakdown. We are fully aware that childhood infection contributes to young adult disease, but this study suggests that this is of relatively infrequent occurrence and a minor factor at present in this province. The high morbidity in the age group 20-24 years

TABLE 5

PERCENTAGE OF CONTACTS IN 1,264 NEW CASES OF ACTIVE TUBERCULOSIS DISCOVERED AT THE FORT QU'APPELLE SANATORIUM, 1935-1939, BY AGE AND SEX

Age	MALES			FEMALES			TOTAL		
	New Cases	Contacts	%	New Cases	Contacts	%	New Cases	Contacts	%
0 - 4	14	11	78.5	20	11	55.0	34	22	64.9
5 - 9	29	21	72.5	25	11	44.0	54	32	59.3
10 - 14	29	15	51.7	48	27	56.3	77	42	54.5
15 - 19	58	30	52.6	94	34	36.2	152	64	42.0
20 - 24	90	24	26.7	149	27	18.1	239	51	21.3
25 - 29	60	9	15.0	105	13	12.4	165	22	13.3
30 - 34	62	6	9.7	67	10	14.9	129	16	12.4
35 - 39	58	6	10.3	40	2	5.0	98	8	8.1
40 - 44	46	1	2.2	22	1	4.5	68	2	2.9
45 - 49	45	3	6.6	12	4	33.3	57	7	12.3
50 - 54	34	4	11.7	23	4	17.4	57	8	14.0
55 - 59	22	1	4.5	26	4	15.4	48	5	10.4
60 - 64	27	1	3.7	12	1	8.3	39	2	5.1
65 - 69	14	3	21.4	6	0	--	20	3	15.0
70 - 74	6	0	--	4	0	--	10	0	--
75 & over	4	0	--	1	0	--	5	0	--
N.S.	7	0	--	5	0	--	12	0	--
Total	605	135	22.3	659	149	22.6	1264	284	22.5

must be largely accounted for by factors other than tuberculosis derived from a family source. This finding emphasizes the fact that one should not be influenced by a negative history of family contact in the diagnosis of tuberculosis in young adults.

MORTALITY AND EXTENT OF DISEASE

The factor which determined high mortality was the stage of disease in the contact when discovered. Out of a total of twenty-eight deaths, twenty cases

were far advanced when discovered; five were moderately advanced, and only two were minimal; one death was due to non-pulmonary tuberculosis.

The concentration of deaths among contacts discovered at age 15-19 years was associated with advanced disease on discovery. Of nine deaths in this age group, five were of males, and four of females.

MORTALITY AND INFECTIVITY OF SOURCE

No relation could be observed between mortality and infectivity of the source. It should be noted that the proportion of lesions in the age group 15-24 years was higher than in other groups, and that mortality resulting from disease discovered in the age group 15-19 years was significantly high. The increased incidence of lesions was due largely to a preponderance of disease amongst the females. This is the unsolved riddle of our generation; an interesting guess is that it may be occupational. A large proportion of females in this age group are the "cleaners" in the homes, hospitals and public places in this country; and, too, they are the nurses in the homes and hospitals. These two occupations alone give occasion for increased exposure to tuberculosis.

A study of occupation and its relation to increased infection, morbidity and mortality in females of this age is a subject which urgently requires investigation.

CONCLUSIONS

It is suggested from this study that, for conditions similar to those described, the following deductions may be made:

(1) The minimum routine for the examination of contacts after removal or segregation of the source should be: annual examination for three years and re-examination in the fifth year, and again in the seventh year.

(2) Such a routine will result in the early discovery of the great majority of lesions arising from the original source.

(3) Inasmuch as childhood infection in this province does not determine to any great extent the high incidence of disease in the age group 20-24 years, there is little more need to examine contacts at this age period than to examine positive reactors in the same age group in the general population.

(4) The study of occupation and its relation to increased infection, morbidity and mortality in females in the age period 15-24 years is urgently required with a view to the use of a prophylactic for the exposed in this group.

(5) The routine required for the follow-up of contacts in any province or district will be related to the incidence of infection of the contacts, the infectivity of the spreaders, and the promptness and effectiveness of segregation. Conditions in a rapidly changing program should be investigated from time to time and the routine adjusted accordingly.

The Value of the Annual Report of the Medical Officer of Health*

J. EDGAR DAVEY, M.D.

Medical Officer of Health, Hamilton, Ontario

WHETHER an annual report is merely a "headache", a necessary evil, or a joy forever, depends very largely upon how one looks upon the work reviewed and the desired objective.

If we consider our work merely as a task to be done in order that a schedule may be completed at the end of the year, our annual report may well be a "headache".

Even if we enjoy our work in its daily round but have no special purpose in view as to the final results, then the annual report is a necessary evil.

But if our heart is in our work, if we look upon it as an opportunity for service to our fellows; if we are continually seeking new opportunities for removing or preventing those conditions that conduce to human misery; if we are interested in seeing our work grow from year to year in efficiency and outlook; if our planning is resulting in the development of a health-conscious community spirit; if we are succeeding in carrying out such an effective educational program that the public generally are being persuaded to apply the knowledge they have, then the preparation of the annual report may be undertaken in a spirit of hopeful anticipation that a good year's work has been done and the results obtained have been worthy of the effort.

I am sure it needs no argument to convince this audience that an annual report is not only a very useful but also a very necessary requirement for every department of health.

Those who would and should be interested in such a report are: (1) the responsible board, (2) the supporting public, (3) other public health workers in our own city and in other places, and (4) the medical officer of health and his staff.

THE RESPONSIBLE BOARD

In every business enterprise, the board of management is deeply interested in a review of the work for which it has been the responsible governing body. The Board of Health is no exception. It is responsible for approving and supervising the policy and expenditures of the department. It is ultimately responsible for the work undertaken and the qualifications, efficiency and fidelity of the staff employed. It should, therefore, be deeply interested in the results of its investment. To the members of the board, the annual report should present an outline of the work accomplished; the duties and responsibilities of the various members of the staff; the time devoted to the major activities

*Presented at the twenty-seventh annual meeting of the Ontario Health Officers Association, held in Toronto, May 22 and 23, 1941.

of the department; the number of the staff and the percentage of the budget allotted to each activity. The report should contain a diagram showing the organization of the department and the chain of responsibility of the various supervising officers. Since the members of the board are responsible to the civic governing body that approves and furnishes the funds for the budget of the department, they should be supplied in the annual report with all the necessary information to justify their program and expenditures, so as to be able to give a satisfactory explanation for any item that might be questioned. Comparative figures for previous years should reveal the progress made or any falling off in results attained, and suitable explanations, if any, should accompany any serious variations. The annual report should show where the budget might profitably be increased or where a possible reduction might be made on account of some change in the policy of the board, or because of changing conditions in the community life.

THE SUPPORTING PUBLIC

While the civic governing body determines the budget for the Department of Health and also supplies the funds required, it in turn must give an account to those who pay the taxes and exercise the franchise. The annual report, therefore, should be of interest to the general public. I am sure that every medical officer of health will testify to the colossal ignorance of the average ratepayer in matters relating to the work of the health department. He knows that we put up placards, keep children out of school, order backyards to be cleaned up, or carry out certain procedures that in some way irritate him personally; but of the real service the department is rendering the community the average citizen knows little or nothing.

He is impressed with the "you must" or the "you must not" of our work, but he has only the faintest idea of the innumerable measures of helpfulness that the department affords for the individual needs or for the welfare of the community as a whole. He drinks his water and milk daily without a thought of the tremendous efforts required of the laboratory, the inspectors and the medical staff to ensure that these necessities of life are safe for use. And so with all the other services. His idea of the health department is that it is a splendid organization when it makes his neighbour "toe the scratch", but that it is a perfect nuisance when he himself is the victim of its activities. Now the annual report furnishes the department with an invaluable opportunity to educate the average citizen in the real value of our work. True, we are financially unable to place an annual report directly in the hands of every ratepayer, and many of them would not take the time nor have the desire to read or study such a report if they did receive one but, indirectly, the desired result may be readily accomplished through the press, the radio, moving pictures, public addresses, leaflets and other means of public education. Almost every person reads the local newspaper and it will be found that the press is not only willing but eager to present to the reading public interesting matters pertaining to the health of the community. Facts and figures alone are not interesting to the

emphasize here the importance of not neglecting those people who, either directly or indirectly, are deeply interested in the health of the community. I refer to physicians, nurses, school teachers, social workers, clergymen and others, who, from the nature of their work, the influence they exert, and the social contacts they are continually making, are the key educators of the community. By placing an annual report in the hands of such a group, we furnish them with just the information they require to assist them in dealing with the varied problems that arise in their daily tasks.

But when I think of other public health workers, I am thinking specially of medical officers who are directly concerned with matters of public health in our own localities. For my own part, I would consider it a most serious handicap if I were not able to receive annual reports from other municipalities throughout the Dominion and from some cities of similar size in the United States. I study these reports with the greatest interest to find by comparison or contrast how we carry on our respective duties and meet our similar or differing problems. In this way, I receive many valuable suggestions for a change of emphasis, or a new departure in carrying on the work. I am sure many of you will bear me out in this regard.

THE MEDICAL OFFICER OF HEALTH

To my mind, the greatest value of an annual report is received by those whose work for the year is being reviewed. The report reveals our successes and our failures. How have we measured up to the objectives with which we began the year? Compared with previous years, are we heading forward or going backward? What new conditions have arisen in our community affecting public health, and how have we met them? What change of policy or procedures will be necessary to make a better showing next year? Which division of the organization is top-heavy and which needs strengthening? With which of our divisions must conferences be held for instruction and improvement in methods? What problems have arisen that demand a change of regulations or new regulations to meet the situation? Along what lines must we stress our educational program? These and many other questions suggest themselves as we consider the year's results and given them a critical analysis.

In order to make the annual report of most value to the various groups just outlined, and most likely to be read by them, the following considerations must be kept in mind:

(a) The form should be of convenient size with an attractive cover, otherwise it will be probably laid aside and forgotten.

(b) The paper should be good and the type easily read. Printing is to be preferred if funds are available.

(c) The proofs should be carefully edited.

(d) Charts, tables and illustrations are necessary and should be selected with the idea of commanding and holding attention. They should be accompanied by suitable explanatory text.

(e) Content. There should be a concise but complete presentation of the year's work. A chart showing the plan of organization and the chain of responsibility of the various officials is very useful. A summary by the medical officer of health of the chief activities, with special mention of the high-lights of the report, together with proposals for increased efficiency or extended activities, should precede the detailed statements of the various divisions. Trends of disease incidence, outstanding vital statistics and new items of legislation should be included. Occasionally, comparative figures for previous years may be included with good effect. Statistical tables should give population and the per caput cost, as well as complete mortality and morbidity information.

In order that other municipalities may make a fair comparison with the local effort, a concise statement of the major activities coming under the jurisdiction of the board, together with a detailed financial statement showing the number of personnel, the time spent and the cost of each of these activities, should be clearly set forth.

I find it difficult to compare my own work with that of another municipality when I have a generalized nursing system whilst theirs is specialized; or when I have nothing to do with the collection of refuse whilst they have it under their control; or when my budget contains nothing for hospital expenditures whilst they have one or more hospitals to administer; or when I administer the health services in the schools whilst, in their municipality, the school health service is supported and administered by the Board of Education.

I find it a most profitable and interesting study to take the various annual reports of our own department, dating back some thirty or more years, and trace the progress of public health through the interval. Without these annual records, the inspiration of the marvellous advancement of this period would be largely lost. The picture presents a challenge that cannot be set aside if equal gains are to mark the coming years. Thus, the annual report provides a permanent record of the activities of the department.

I find that a great deal of the labour and time required to prepare the annual report can be saved by the preparation of a monthly report as well. By such procedure, there is also less likelihood of missing some of the more interesting events of the year that might otherwise be forgotten. Then, too, a monthly statement of the expenditures will show whether or not we are living within our budget. By keeping special folders for lectures, press notices, public addresses, notices to physicians, etc., it is not difficult at the end of the year to compile your report on public health education and evaluate your efforts in this direction.

The publication of the annual report should not be delayed too long after the end of the year. It should contain, either at the front or back, a concise but adequate alphabetical index.

Needless to say, it should be distributed if possible without folding or rolling, to a carefully selected list of those who, by virtue of their office, or because of interest in the subject matter, are most entitled to a copy.

Pediculosis---A New Treatment

LLOYD P. MacHAFFIE, M.D.

School Medical Officer

Ottawa Public Schools

HEALTH officers, school medical officers and public health nurses will, I feel, agree that ridding a community of pediculosis is a real and time-consuming problem. As school medical officer of the Ottawa public schools my chief concern has been the great loss of school attendance from this cause and the amount of the school nurses' time which has to be allocated to pediculosis detection, exclusion, treatment and follow-up, particularly when children of a large family living in an overcrowded insanitary home become infected.

Before discussing treatment certain observations regarding pediculosis are worthy of note:

1. Pediculosis principally affects the heads of the poorer, unclean children coming from crowded, insanitary homes.
2. The occupants of several homes in a vicinity are usually affected; one must find out with whom the infected children associate outside of school.
3. Mothers and female children of pre-school and post-school age are great sources of infection. The post-school or adolescent girl with a permanent wave is the worst of all.
4. Parents, even if they conscientiously try to clean up the heads of several children, are unable to do so; the first child treated and cured is reinfected before the last one has had any treatment; and when it is possible to treat all children at once they soon become infected again from the mother or a post-school daughter.
5. Pediculi apparently do not live long away from their natural habitat: one wonders whether they live very long on caps or on clothing.
6. Chronic offenders, having realized the futility of treatment, become reconciled to the condition, aggressive and uncooperative.

TREATMENT

There is at least one excellent product which when used intelligently in a family where one or two are infected is very effective; but the need has been great for a quick, cheap, non-toxic, efficient remedy which can be applied in a few minutes to the heads of a whole family, a remedy that instantly kills both nits and lice—a really certain and effective “delouser”. When one realizes the rapidity with which head lice multiply (from one to 40,000 in two months) and the facility with which the pest spreads from head to head, the importance of treating every head in a home at the same time is obvious.

The cure which I am about to describe is one which Mr. C. R. Twinn, of the Dominion Department of Agriculture, Entomological Branch, found to be

the most efficacious in a series of tests made with various drugs and chemicals on public and separate school children of Ottawa. The preparation is lethane (No. 384 Special Concentrate) in deodorized kerosene (Penzolene). One treatment applied to the head without towel covering was found to kill nits and lice immediately. Lethane is *n* butyl-carbitol-thiocyanate.

During the fall term we have treated approximately 260 children and adults with a 15 per cent solution of lethane in purified kerosene, with astonishing results. At first we gave two treatments a few days apart, but later it was found that only one treatment was necessary. Treatments were given in the health service rooms at the schools but sometimes the homes had to be visited. Older girls, mothers and pre-school children were brought to school if possible; we have frequently had to send a small bottle to the home when older girls could not or would not come to the school. No form of treatment or advice that we have ever given in school has been received with such gratification and enthusiasm by the parents. The co-operation of the parents in removing dead nits, in the majority of instances, leaves little to be desired: nits seem to dry up very soon and can readily be combed out.

We apply the preparation in one of two ways: by hand or with a fine fly spray. In either case we make sure that the hairs, especially those near the roots, are well soaked. The patient is directed to keep the eyes closed. After the treatment, all excess is removed from the ears, the nape of the neck and the forehead, and the patient is directed not to wash the head for several days: re-infection from another source is then not so likely. The patient is instructed not to cover the head with a towel. Mothers are told to fine-comb all dead nits as soon as possible, cleaning part of the head each day, and, if they wish, after a few days they may shampoo the head and fine-comb it.

All reports concerning the toxicity of lethane are favourable. Possibly caution should be exercised if any skin abrasions are present but this has not been proved. Some skins may be unduly sensitive to kerosene or lethane. It is more than likely that a much weaker preparation would be as effective, and undoubtedly replacing part of the kerosene with olive oil would lessen any irritation.

There is every reason to believe that with the use of this preparation (5 per cent or 10 per cent lethane may be enough) a community can readily and speedily be freed from pediculosis. The cost per head is not more than two or three cents.

Experiments are now under way designed to ascertain the usefulness of lethane in an ointment or oil base in the treatment of scabies. The results so far have been very encouraging.

High School Medical Inspection in Burlington, Ontario

A. H. SPEERS, M.D.
Medical Officer of Health

IN 1931 the energetic and aggressive Principal of the Burlington High School came to me, as Medical Officer of Health, and also School Officer of the Public School, and asked if it would be possible to inaugurate medical inspection in the High School at Burlington. This was a new venture, in so far as Burlington was concerned, and I believe that ours was one of the first of the secondary schools in the Province of Ontario to render such a service. Burlington is a town of about four thousand people.

The medical inspection and examination service was started in the autumn of 1931, and is now in its eleventh year. The work has as its object the health and future welfare of each student and is designed also to guard against any overstrain in physical training or athletic sports. The physical examinations are made in the afternoon, and we endeavour to make them as thorough as possible, in the time that we have at our disposal. They are conducted in the board room of the High School, which is well lighted and is provided with a screen for privacy. The student is prepared for examination behind the screen by the public health nurse, who is in attendance at all times and assists in the work. Two or three students are admitted to the room at once. The mouth and throat are inspected and the teeth are observed, any mal-occlusion or carious condition that may exist being noted. The nasopharynx is examined, and enlarged and infected tonsils and adenoids are recorded. Examination is made also of the ears and hearing is tested. Examination of the eyes frequently reveals the need for glasses or other attention. The heart and lungs of the student are examined both at rest and after suitable exercise, which consists of touching the toes twelve to fifteen times. Frequently murmurs are heard which had not been recognized previously. During the years an excellent understanding has been developed between the students and the medical examiner. This undoubtedly is one of the most important features of the service. In the maintenance of this physician-student relationship facts are ascertained which are very helpful and permit of advice being given.

When the examinations have been completed, a report is made out in duplicate, specifying the defects found, with the request that the parent or guardian consult the family physician, dentist, oculist, or specialist, as the case requires. The duplicate copy of the report is kept in the school for future reference and for the guidance of the teachers in physical training. No infringement is made on the rights of the family physician, and those requiring attention are requested to keep in touch with their own doctor for advice, guidance, and treatment.

When we started this work, we made an examination of all students. Now we examine all students entering from High School Entrance into Grade IX, and students in other grades entering for the first time, as well as any students who have had defects in previous years and those who are taking part in competitive games, such as football or basketball. It has been noted that those students in attendance from rural schools who have not had previous medical supervision, or been educated in health matters, present the most defects.

We are very careful to inform the teachers in physical training concerning those who have heart conditions, whether of functional or organic nature. It has been very interesting throughout the years to notice the improvement that has taken place in those who have had defects remedied, and in those who have been restrained from physical training because of a heart condition or some other trouble.

When the examinations have been completed and the reports sent to each parent or guardian concerned, with the request that the defects outlined be attended to, a report summarizing the work is prepared for the information of the School Board. The findings of the work as outlined in the formal report for 1940 is presented below. The examinations occupied the period from September 5th to October 10th, and the work was conducted with the assistance of Miss Anne Smith, the public health nurse. It is interesting to note that many in the group desired the examination to learn if they were sufficiently improved to permit of physical training, indicating the interest of such students in the examinations. It is very gratifying to learn that the students have a desire to preserve their health. In making these examinations from year to year, I have noticed that existing defects have not been aggravated by high school attendance, and I can see an improvement in comparison with previous years.

MEDICAL INSPECTION AND EXAMINATION OF STUDENTS AT BURLINGTON HIGH SCHOOL, 1940

Total number of pupils examined.....	144
Number of new students examined.....	105
Number of students re-examined.....	39
Number found without defects.....	51
Number found with only dental defects.....	24
Number wearing glasses.....	10
Number with defective vision.....	5
Number who have procured glasses since last inspection.....	3
Number with diseased tonsils.....	18
Number with defective nasal breathing.....	4
Number with decayed permanent teeth.....	11
Number with mal-occlusion and crowded teeth.....	13
Number with tonsils and adenoids removed.....	85
Number with defective cardiac conditions.....	58
Number of new cardiac conditions discovered.....	19
Transmitted murmur	1
Presystolic murmur	10
Suspicion of murmur	2
Irregular pulse	3
Generally weak heart muscle.....	1
Mitral obstructive murmur	2

Number of heart conditions re-examined.....	39
Number of conditions now satisfactory.....	4
Number improved	22
Number unchanged	12
Condition more pronounced	1
Number restricted from strenuous exercise and competitive games.....	37
Number restrained from physical training.....	15
Number who have had communicable and other diseases sometime in their lives (but not necessarily during their residence in Burlington)	139
Measles	109
German measles	72
Scarlet fever	18
Whooping cough	85
Chicken pox	84
Mumps	62
Pneumonia	13
Rheumatism	1
Diphtheria	2
Asthma	2
Poliomyelitis	1
Number who have been vaccinated against smallpox.....	99
Number who have been immunized against diphtheria.....	103

The cost of the service has been met by the High School Board. When the work was inaugurated the cost was fifty cents per student; this has been slightly increased. However, I desire to state that, on my part, I undertook the work in the beginning from a humanitarian standpoint and have continued to conduct it on this basis.

During last September all the students were given the opportunity of having a tuberculin test made, and about 269 took advantage of this offer. Arrangements have been made to have an X-ray examination of those found to be positive, at a nominal charge.

The high school medical inspection service is simply an extension of the health services of the community. Examination of infants is provided in the baby clinic, and physical examinations are made while the child is attending public school. Including the examination in high school, each pupil has the opportunity of receiving at least three examinations. Children presenting defects are examined yearly. The experience of Burlington with the extension of medical inspection to high school students indicates that this service is well worth while and is yielding good dividends. Its success is dependent on the excellent co-operation of the School Board, the teaching staff of the high school, and the student body.

The Fallacy of Calculating Rates of Births and Deaths According to Place of Occurrence*

EUGENE GAGNON, M.D.

*Assistant Director and Demographer, Department of Health
Montreal, Quebec*

ABOUT twelve years ago I met an old classmate whom I had not seen for a long time. He was a graduate of an American public health school and occupied a responsible position in the public health field of his country. He happened to be interested in vital statistics and we discussed many things connected therewith. When it was mentioned that in Montreal births and deaths were allocated according to the place of residence, he became somewhat disturbed. Although I tried to convince him that it was the only logical way, he was very emphatic in expressing his own opinion and when he left me I felt that he was under the impression that our methods were very antiquated and needed rejuvenation.

I met the same gentleman in the course of last year. In the meantime, I had inserted various comments in my annual reports tending to prove that in countries where the population is enumerated according to residence, it is illogical to calculate rates of births and deaths according to place of occurrence. I thought that he might perhaps have modified his opinion. But he was still more emphatic and he told me very frankly that I was probably the only man in the whole civilized world to use such a method. It was evident that he somewhat despised people who stuck to such an obsolete practice. Moreover, he seemed to be so confident that this prompted me to inquire more deeply into the subject.

Let me quote another fact. In the course of the year 1940, the Director of the Health Department of the city of Montreal, in preparing a lecture on tuberculosis, asked if I could supply him with comparative figures about the prevalence of that disease in cities and more especially in those of the American continent. I immediately thought of the epidemiological reports published by the League of Nations, in which statistics for countries and cities of the five parts of the world are published, and I told Doctor Groulx that it should be very easy to find therein more information than he needed.

Back at my office, I started to search in those reports. I came across the name of a city whose rates for tuberculosis were familiar to me and I found that those published by the League of Nations were only about half the real ones. This was due to the fact that half the deaths from that disease of the residents of that city occurred in sanatoria located outside of the city limits and seemingly were not included in the number of deaths reported to the League of Nations. On the other hand I could not find in the report of the League any reference permitting one to infer that the rate published was a fallacy although this was made very clear in the annual reports of the city.

*Presented before the Section of Epidemiology and Vital Statistics at the thirtieth annual meeting of the Canadian Public Health Association, held in the City of Quebec June 19-21, 1941.

Previous to the discussion of these facts I would like to be allowed to tell you a short story. Once upon a time there were two sisters, Mary and Ann, both married and living in two neighbouring houses. Their relations were very friendly and they had daily opportunities to render to one another those small services which help to keep up friendship.

One day there was a big clearance sale advertised at very much reduced prices. They both needed some of the articles advertised and they decided that Mary would go shopping and Ann, as she wanted only a few articles, would look after the children of both families.

The next morning Mary left home with \$60.00 in her purse, \$50.00 of her own money and \$10.00 from her sister. After coming back, she balanced her accounts as follows:

	Her own	Her sister's	Total
Money on hand that morning.....	\$50.00	\$10.00	\$60.00
Money spent.....	30.00	8.00	38.00
Money left.....	20.00	2.00	22.00
Per cent of the money spent.....	60.0	80.0	63.3

Mary gave back her sister the \$2.00 left but kept all the bills of sale in order to check the goods when delivered. When this was done, she sent to her sister what had been bought for her, but kept all the bills of sale.

Mary had the good habit of keeping accounts of all her expenses. That day, when sitting down at her desk, she first added together all the bills of sale on hand and found an expense of \$38.00, which amounted to 76 per cent of the \$50.00 she had in her purse that morning for her own purchases. She counted the money left in her purse and found \$20.00 but when one deducts \$38.00 out of \$50.00, the result is 12, not 20, and she was puzzled. Finally, the thought came to her that the amount of \$38.00 included \$8.00 purchases made for her sister.

I have made it evident that Mary's true rate of expense is 60 per cent. The rate of 76 per cent obtained when the expenses of her sister were included is a real fallacy.

Let us now substitute as follows:

P, population of a given city, for Mary's own money;

D, resident deaths, for Mary's purchases for herself;

F, all deaths including non-resident, for Mary's and Ann's purchases.

It becomes evident that $\frac{D \times 100}{P}$ or $\frac{30 \times 100}{50} = 60$ will give the true rate of

deaths, while $\frac{F \times 100}{P}$ or $\frac{38 \times 100}{50} = 76$ results in a fallacy which, as such, should not be published.

I am perfectly aware that the above story does not cover the whole field of transfers necessary to obtain an exact death rate. It takes care of the

outward transfers but should be supplemented by inward transfers,—residents deceased outside the city limits. This was omitted in order that this story might be made shorter and the conclusion clearer.

I now come to the second part of this paper, which is the practice adopted in various parts of the world as regards the classification of births and deaths according to residence.

Let us first answer this question: Is it true that statisticians who make transfers of births and deaths according to residence and calculate all their rates after such transfers have been made, are to be considered as backward people and in a class by themselves? I am not familiar with the practice followed in most of the European countries but I have very good information about the one adopted in England and Wales.

In his quarterly return no. 360, published for the last quarter of the year 1938, page II, the Registrar General for England and Wales, in his "Explanatory statement" says: "in all tables except IV, live births and deaths are classified according to area of residence, the registered numbers having been provisionally adjusted by means of such information as is available. Any further and final adjustments will be incorporated in the figures to be published in the annual review". Table IV, referred to above, gives the number of births, stillbirths and deaths as registered in the various registration districts without correction for inward and outward transfers. This is clearly established by a footnote. There are no rates calculated on table IV; just the bare figures are published.

In his explanatory statement, the Registrar General makes an exception for table IV only; it is therefore presumed that the figures and rates published in table VII have also been corrected for inward and outward transfers. This table gives the births and deaths during the third quarter of 1938 for London and certain cities in the British Empire and foreign countries, which includes nearly all the capital cities of Europe, seven cities in Germany, and, on the North American continent, Montreal, Toronto, Chicago and New York.

As regards Scotland and Ireland, I do not have on hand the reports of the Registrars General, but reference to the annual reports of cities such as Glasgow and Aberdeen in Scotland makes it clear that inward and outward transfers have also been adopted as a matter of general routine. Let us quote the following from the report of Glasgow for the year 1937, page 38, under the title "transfer of deaths": "The deaths on which the above rates for Glasgow are calculated include those of persons formerly residents in Glasgow, but dying in institutions or elsewhere outside the city. On the other hand, those dying within but with home addresses outside are excluded. The inward transfers numbered 491 in 1937 while the outward transfers numbered 2,119." A note at the foot of page 315 of the report for 1938 indicates that births and deaths have been corrected in Glasgow for transfers since 1913.

My information about other European cities is limited to the practice followed in Nancy and Strasbourg, in France, and Brussels, in Belgium, according to their annual reports.

In both Nancy and Strasbourg, inward and outward transfers are made for

births and deaths; comments are made of rates calculated for the resident population only.

In order to give an idea of the importance of making the correction for residence, let us say that in 1935 there were, in Strasbourg, 1,979 births and 701 deaths of non-residents, which was a proportion of 42.7 per cent of all the births and 23.4 per cent of all the deaths registered in that city.

In Brussels in 1937 the number of deaths greatly exceeded the number of births. The figures are as follows:

	Registered	Rate per 1,000 pop.	Residents	Rate per 1,000 pop.	Non- residents	Rate per 1,000 pop.
1	2	3	4	5	6	7
Number of deaths...	3,458	17.8	2,367	12.2	1,091	5.6
Number of births....	1,822	9.4	1,197	6.2	625	3.2
Surplus of deaths....	1,636	8.4	1,170	6.0	466	2.4

All these figures and rates are distinctly published in the report and it is very easy to distinguish what belongs to the resident population and what refers to the non-resident.

As regards the excess of deaths over births, it is rather difficult to understand why (page 10) it is calculated by deducting from the number of deaths to residents of Brussels, with a rate of 12.2 (column 5 of table), the number of births registered in that city, the rate being 9.4 (column 3). The rate of decrease thus obtained is the difference between 12.2 and 9.4 or 2.8 per 1,000 population while according to the figures given above, the rate of decrease or the surplus of deaths over births is 6.0 per 1,000 of the resident population (column 5).

In connection with Asia and Africa, we have reports for Shanghai, Tokyo and Osaka, and Cape Town.

The 1938 report for Shanghai is made according to the British practice. There are tables going as far back as the early part of this century, in which figures are given for the resident European and Chinese populations. On page 27 of this report, causes of death by ages and by months are given separately for the resident and non-resident populations.

In Tokyo and Osaka, Japan, mention of "resident population" is made in the title of each table. All the rates are calculated for residents only.

In Cape Town, South Africa (report for the year ending June 30th, 1939), the figures and rates for births and deaths published for the European population have been corrected for inward and outward transfers; those referring to the other part of the population are corrected for outward transfers only.

Let us, now, say a few words on what is done in North America.

I recently wrote to the Bureau of Census and Vital Statistics, at Washington, D.C., asking for any information they may have on this subject of transfers of births and deaths for residence in the various States of the Union.

The answer to this inquiry is to the effect that 36 States out of 48, and the

District of Columbia are making the 1940 tabulations on the residence basis. Included in the list of the 36 States are New York, Massachusetts, Pennsylvania, Illinois, and Maryland, to mention only those with a larger population. It is also stated that the Federal Division of Vital Statistics made the first tabulation on this basis of residence in 1916, "but," it is added, "it was not until 1935 that a complete reallocation of non-residence was instituted. Since that year we have made an increasing number of tabulations on a residence basis and in 1937 we published our annual vital statistics report in two parts, one part containing the tabulations by place of occurrence and the other part by place of residence. The part containing the tabulations by place of residence will be expanded over the course of the next several years and ultimately the major portion of our tabulations will be on this basis."

This letter shows the magnitude of the effort made by our neighbours to modify their system of classification and gradually introduce in their statistics reallocation by residence.

In Canada, the Dominion Bureau of Statistics has made a few scattered attempts towards reallocation for residence, but as far as I am informed all the main tabulations are made according to the place of occurrence of the events.

Up to quite recently the Provinces were following the same method of tabulation as the Dominion. Some of them, like Quebec and British Columbia, are making partial reallocations for a number of cities and towns, but the basis of the general tabulation, calculation of rates, has remained unchanged and is being done according to the place of occurrence.

If we take the reports published by Canadian and American cities, I will repeat that Montreal has had the good fortune to have statisticians who from the start compiled statistical data according to the place of residence, following British practice.

I am also pleased to mention the fact that in my opinion some cities have recently made a step in the right direction by publishing side by side, in practically all their tables, figures and rates based on the place of occurrence and of residence. This is an absolute necessity as a transition in order to insure continuity and comparability of the rates previously published. In making this reference, I have more specially in mind the reports of the cities of Toronto, Hamilton and St. Catharines, which I received and studied recently. In Hamilton, all comments are made on the residential rates only.

As regards American cities, with the exception of the city of Baltimore, I have no reports on hand since 1935 or 1936. In the report of Baltimore for the year 1938, the Commissioner of Health, in his comments, refers to the resident births and deaths only. Furthermore, in the titles of all the tables it is clearly indicated whether the figures or rates refer to births or deaths as recorded or of residents only. In many important tables, recapitulations going back to the year 1930 are made indicating the number of facts and rates calculated for events both as recorded and according to residence.

In Boston, there is a clear indication in the title of nearly each table that residents and non-residents are included in the figures published, but in some other cities there is no clear reference to that effect.

In connection with the League of Nations, the last report on hand is the Annual Epidemiological Report for 1935 published in 1937. I have searched the footnotes, which in some instances are very numerous, but I could not find any indication whether the figures or rates published for cities of the five parts of the world refer to residents or not. It is true that at the foot of page 77 it is said: "The rates printed in italics concern the resident population, the others refer to the present population, inclusive of non-residents." In the part reserved to North America, rates of Canadian cities are printed in italics, those for American cities are not.

Have the births and deaths of Canadian cities been corrected for residence? It is impossible to answer yes or no. We have been asked to furnish statistics to the League of Nations and I suppose the city of Toronto has been requested to do the same thing. The figures supplied by the city of Montreal were for residents after inward and outward transfers. Here are the rates for tuberculosis (all forms), published by Montreal and Toronto in their annual reports and the corresponding figures from the League of Nations report for 1935, published in 1937 (page 99).

Years	Montreal		Toronto		
	League of Nations	City reports	League of Nations	Deaths in city	(1)
1932.....	107.9	100.0	32.6	29.3	46.3
1933.....	97.9	95.8	22.5	22.9	42.5
1934.....	87.0	83.4	22.7	22.7	40.8
1935.....	80.8	74.9	21.6	21.6	42.0

(1) Deaths in city including deaths of non-residents plus deaths in sanatoria.

As none of the rates published for Montreal agree with our own publication, I am at a loss to find out how they were calculated. As regards Toronto, it is evident, that, except for 1932, they refer to deaths in the city only. The rates for Baltimore and other American cities seem also to have been calculated on deaths recorded, while those for the cities of England and Wales are for the resident population only, after inward and outward transfers. But how could such rates be compared between them and conclusions drawn therefrom if the basis of calculation is not the same and if in some rates are included data not pertaining to the population concerned?

The League of Nations is also publishing monthly statistical supplements to the weekly epidemiological record. In each issue of the supplement, under the title of "vital statistics of large towns," monthly rates are published either for births or for infant mortality or for general mortality. Just under the title a note is printed as follows: "The rates published in italics concern the resident population; the others refer to the present population, including non-residents."

Here is a summary of the towns whose rates are published in italics in supplement No. 4 for year 1940, page 50:

1. Africa: Algiers, Tunis.

2. North America: Buffalo, New York, Rochester, Quebec, Toronto.
3. Asia: Singapore, Manila.
4. Europe: All the towns of England, Wales, Scotland, Ireland; also those of Norway, Sweden, Denmark, Holland, Belgium, Germany, Switzerland, France, Austria and Hungary.
5. Oceania: Eight cities are mentioned and all their rates are printed in italics.

This adds many towns to the few referred to above. It must be noted that rates for the city of Montreal, Canada, are printed in plain *Roman type*, although they were rightly printed in italics in the report for year 1935. ~~u u~~

I have before me the blank form supplied by the League of Nations for these reports. This form immediately under the name of the town, bears the mention, "data concerning *residents only*". The last two words are underlined and there is an asterisk after "only". This asterisk refers to a note at the foot of the form saying: "If these figures concern the present population, please indicate."

The clerk entrusted with the duty of making these returns to the League for the city of Montreal says that to avoid all misunderstanding he has always added the word (*residents*) between parentheses after population, and under the footnote mentioned above he wrote: "These statistical figures are for residents only." This seems to me very plain and very clear, and makes it so much more difficult to explain why the rates for the city of Montreal are not printed in italics. It also raises the question of the number of such errors that might have been committed.

For the sake of comparison, statistics of various cities, to be of any value, must have been compiled according to the same principles and the same methods. From the story of Mary and Ann, it has been shown that rates calculated on the basis of place of occurrence are false rates which, as such, should not be published.

In my opinion there is only one logical way to be followed in calculating vital statistics rates for counties and cities and this is, on the one hand, by making reallocation for residence when taking a census, and, on the other, by inward and outward transfers for residence of births and deaths whatever be the place where they occurred. As a matter of fact, the director or commissioner of the health department of a city or the medical officer of a county health unit, in order to plan his future work, must be acquainted with the real situation existing in his city or county. This can be obtained only by complete reallocation for residence, because when to the births and deaths pertaining to the resident population are added a variable number of the same events that should be counted elsewhere, the value or accuracy of the rates thus calculated is, to say the least, very much impaired.

The following facts are an illustration of the result. In the course of this study, while seeking information in a provincial year book, I came across the name of two residential cities in which the general standard of living of the population is much higher than the average. In one of them, the birth rate published is 1.5 per 1,000 population and the infant mortality rate per 1,000

births is 17.5; in the other, the corresponding rates are 8.3 and 125. Everybody knows that these rates in both cases are a pure fallacy, if not an absurdity, but as there are no corrected rates published, the real ones are concealed. The necessity of reallocation for residence is becoming more and more urgent as means for treatment and confinement in cities are increased and are more appreciated by the population, and also as the facilities for travelling are becoming more and more within the reach of everybody.

A century ago, before the advent of the railway, the proportion of people who undertook distant journeys was only an infinitesimal fraction and nearly all the births and deaths occurred at the place of residence. The necessity of reallocation was not therefore as urgent as it is now; moreover, even half a century ago, a number of people were reluctant to be treated in hospitals because, in their opinion, these were places in which to die, not to be cured, and a much lesser part of the population was prone to ask admission therein. As a matter of fact they waited so long that it was too late for proper hospital treatment. This mental attitude is now changed and this is why the medical officer of health of a city in which hospitals and other institutions are located is so much interested in knowing how many of the deaths or births recorded in his city were of residents.

If we take the population of a province or of a state as a whole, the need for transfers according to residence is much lessened, because nearly all transfers are not between provinces or states but between municipalities of the same province or state.

Let us quote some figures extracted from the report of British Columbia for 1939.

Table I shows, for the whole province and for cities of over 5,000 population, the total number of births and deaths recorded, the total number of resident births and deaths, and the percentage of resident births and deaths to the total recorded.

	Births			Deaths		
	Total	Resident	%resident	Total	Resident	%resident
British Columbia	12,373	12,317	99.5	7,517	7,481	99.5
Towns or cities:						
Kamloops.....	231	82	35.5	125	61	48.8
Nanaimo.....	201	119	59.2	123	85	69.1
Nelson.....	221	118	53.4	84	56	66.7
New Westminster....	790	339	43.0	317	147	46.4
North Vancouver.....	188	108	57.4	104	77	74.0
Prince Rupert.....	126	83	65.8	69	52	75.4
Trail.....	363	258	71.1	52	40	76.9
Vancouver.....	4,107	3,471	84.5	2,798	2,445	87.4
Victoria.....	883	437	49.4	744	499	67.0
Total for cities.....	7,110	5,015	70.5	4,416	3,462	78.4

It is seen that the proportion of transfers from the other provinces is only one half of one per cent, while the non-resident births in the city of Kamloops are as high as 64 per cent of the total; and so on for the other cities.

It must be added that inward and outward transfers of births and deaths are much more complicated than the counting of the events at the place of occurrence. I confess that I have no historical knowledge on the subject, but I imagine that England and Wales and all the nations of Europe which started to compute statistical data about one or two centuries ago, first initiated their system on the basis of place of occurrence. In the United States and Canada, vital statistics were left to the initiative of the states or the provinces which, in many instances, had a system established over a century ago, according to the place of occurrence. It was only at a rather recent date that the Federal Bureaux of Census in Canada and the United States undertook to establish a uniform system of collection and tabulation of vital statistics for all the provinces or states.

At the time these federal organizations were made, it would have been more logical to adopt the British system of reallocation for transfers, but I doubt that it would have been practical as it would have counteracted the existent provincial or state systems.

The United States and Canada, owing to the immense extent of the territory, are countries where a new national organization is most difficult to realize. In such instances it is generally more practical to adopt at first the simpler system and when all the parts of the machinery are working very smoothly, to change gradually to a more complicated one.

This procedure has the disadvantage of necessitating the institution of a period of transition during which, for the sake of comparability and continuity, two sets of rates must be published. But all things being considered, this is largely compensated for by the increased facility in introducing the new system.

In Canada this organization was performed by Mr. E. S. Macphail, now retired, and the late Mr. W. R. Tracey, whose death in 1938 was so much regretted. I have always held both of these gentlemen in the highest esteem and the work they did for the Dominion Bureau of Vital Statistics cannot be overpraised. From conversations I had with them on this subject, I am convinced that they would have adopted the English practice if they had not judged it too complicated to be applied at the very start of the organization.

Mr. Tracey had also begun to prepare the transition from one system of tabulation to the other and it was his intention to give this matter his first attention. According to information received from the Bureau of Vital Statistics in Washington, this work is progressing very rapidly in the United States. All this work would not have been undertaken if it was not considered a measure of progress and absolute necessity to obtain more accurate statistics about the situation existing in the various municipalities and counties of the United States. It also seems from what has been stated above, that those who have already and who for a number of years adopted the policy of making transfers for residence, far from being backward in their methods, are rather occupying an advanced position and leading the way for the others.

Before concluding, I wish to express the hope that the Dominion Bureau of Vital Statistics will continue at an accelerated pace the good work started a few years ago; that, before long, all births and deaths in Canada will be

reallocated for residence; and that all the main tabulation and calculation of rates will be based on residence only, as it is the only way to obtain accurate statistics from which real comparisons can be made.

Since this paper was written, on May 30th, I received from Mr. Forrest E. Linder, technical expert of the Bureau of Census at Washington, D.C., additional information in answer to a questionnaire sent to him. His letter may be summarized as follows:

1. One would "be correct in assuming that practically all of the statistics published by city health departments in the United States are tabulated on the basis of occurrence". Five cities organized as separate and independent registration units are making their tabulations on the basis of an interchange of non-resident certificates with other registration offices. Baltimore makes a very complete interchange whereas the one made by the cities of Boston, New York and Washington is less thorough, but they make tabulations in such a way that at least some data for non-residents are given. The city of New Orleans makes tabulations purely on a place-of-occurrence basis."

2. The Bureau of Census at Washington has no definite information regarding the basis on which the tabulations of the League of Nations were made. But opinion is given that for the United States many tabulations must be given on a place-of-occurrence basis since these data have been more customarily used.

3. To a question regarding the value to the director of a department of health of rates calculated on the basis of residence, the answer is given that an extensive study on the importance of non-resident tabulations is being made and that "enough is already known regarding this subject to convince us [the U.S. Bureau of Census] that tabulations by residence are absolutely essential for the work of the local health offices."

Tabulations by place of occurrence have real value in determining the extent that hospital facilities, etc., will be utilized by non-residents.

4. Mr. Linder published in the March, 1937, issue of the Journal of the American Statistical Association a paper in which it is shown that out of 246,719 deaths in 18 states in 1935, only 8,825 or 2.5 per cent were non-residents from outside the state, while 46,502 or 13.4 per cent were not residents of the tabulation unit in which the death occurred.

EDITORIAL SECTION

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AN IMPORTANT DEVELOPMENT IN NUTRITION IN CANADA

THE announcement that the Department of Pensions and National Health of Canada has organized a Division of Nutrition has been welcomed by everyone interested in public health activities. During the past few years there has been a growing realization that nutrition must be considered as part of a sound public health program. The war has brought new problems in the maintenance of health; in the solution of these nutrition cannot be ignored. The Canadian Public Health Association congratulates the Department on establishing this new, important division.

In selecting personnel for the Division of Nutrition, the Federal authorities have been most fortunate. The Director of the division, Dr. L. B. Pett, is particularly well qualified. Dr. Pett has had a sound biochemical training and is a graduate in medicine. His studies in nutrition in Alberta are well known. Associated with him as assistant director is Miss Marion Harlow of Montreal. With training in home economics and with years of experience in the social-service aspects of nutrition, Miss Harlow brings to the new division a most important view-point. The nutritionists of Canada will undoubtedly extend to Dr. Pett, Miss Harlow, and their assistants the utmost co-operation and support in the new undertaking.

The preliminary plans announced by the Division of Nutrition indicate that its staff is keenly aware of various nutritional problems which exist in this country. Dietary surveys, conducted by the Canadian Council on Nutrition and reported in this Journal (May 1941), have shown that deficiencies exist and that many people are not securing sufficient quantities of the protective foods which supply minerals and vitamins. These mistakes in Canadian habits can be partially corrected by education. The new division has a limited budget and it will be necessary to secure the co-operation of all existing agencies if a national program of nutrition education is to be undertaken. Efforts have been initiated to secure this co-operation. Published reports also state that one important activity will be improvement in nutrition in war industries.

The work of the Division of Nutrition will be made easier by the current

wave of enthusiasm for nutrition. All too frequently a proper supply of food is considered to be general panacea for all human ills. No one will question the value of nutrition but it is only one of the factors which determine health.

Assured progress in nutrition can be achieved most satisfactorily by considering this subject in relation to a broad program of health activities. The establishment of a Division of Nutrition in the Department of Pensions and National Health is evidence, not only that the Department is cognizant of modern developments, but also that nutrition will be regarded as part of the national effort to maintain health on as high a level as possible. This Journal has, in the past, frequently given proof of its interest in nutrition. It now extends its whole-hearted support and co-operation to the Division of Nutrition.

THE 1941 CANADIAN HEALTH CONSERVATION CONTESTS

TWELVE cities and fifteen full-time county health units have enrolled in the 1941 Canadian Health Conservation Contests, which are sponsored by the Canadian Public Health Association, in co-operation with the American Public Health Association. Enrollment in the 1941 Contests will close in January.

The City Health Conservation Contest was introduced in Canada last year and the Rural Contest four years ago. In the United States the City Contest has been conducted for twelve years and the Rural Contest for seven years. During the past several years an effort has been made to revise the fact-finding schedule in such a way as to meet changing needs and emphases in public health administration. The new schedule, which will be used this year in the City Contest, and in the Rural Contest except in the Province of Quebec where last year's schedule will be used, is a culmination of this effort. The changes have been made only with the approval of experienced health officers. The purposes of the Contests remain the same: to stimulate community-wide interest in and understanding of public health in order that more effective services for the solution of local public health problems may be possible.

The new fact-finding schedule endeavours to portray and emphasize the total public health picture rather than a cross-section or segment of it. The change in type of question has been made in the belief that communities should ask themselves what their total problems are, and what their total facilities and services are for meeting those problems. Considerably more space has been devoted to health education. An effort has been made to place more emphasis on quality and less on quantity of service. Wherever possible, the appraisal is based on end results rather than upon detailed methods.

At first glance, the new schedule will appear longer and perhaps more complicated than the old one. It is longer, but in many ways it is less complicated. It requires a much more comprehensive knowledge of the community as a whole, its problems and its resources and its facilities, but a much less intensive search and study of records. It is believed that the new schedule will lend itself to a much clearer interpretation of the community's problems and the extent to which they are being met than was possible with the old schedule. This should prove of great value in focusing public attention upon future needs.

PROGRAM

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TENTH ANNUAL CHRISTMAS MEETING OF THE LABORATORY SECTION CANADIAN PUBLIC HEALTH ASSOCIATION

ROYAL YORK HOTEL, TORONTO
DECEMBER 17 AND 18, 1941

« »

WEDNESDAY, DECEMBER 17th, 9.00 A.M.

PRIVATE DINING ROOM No. 9, MAIN MEZZANINE FLOOR

Registration. A fee of \$1.00 is being charged to cover in part the expenses of the meeting.

Organization of a Voluntary Blood Donors Clinic. WM. D. HAY,
Richardson Pathological Laboratory, Queen's University.

The Analysis of Tetanus Toxoid-Antitoxin Floccules. P. J. MOLONEY
and JOAN N. HENNESSY, Connaught Laboratories, University of Toronto.

The Occurrence of Trichomonas Vaginalis in Toronto. E. KUITUNEN-
EKBAUM, School of Hygiene, University of Toronto.

**A Study of the Eosinophilia and Immunity Produced in Guinea Pigs
by Infection of Ascaris lumbricoides L.** A. MURRAY FALLIS, Ontario
Research Foundation, Toronto.

Reclamation of Agar. HILDA G. MACMORINE, Connaught Laboratories,
University of Toronto.

Spread of Tuberculous Infection by a Driver of a School Bus. WM. D. HAY,
Richardson Pathological Laboratory, Queen's University.

**A Case of Obscure Pulmonary Infection: Observations on Lung Infection
Roentgenologically Tuberculous but Bacteriologically Yielding a
Pathogenic Yeast and Non-pathogenic Acid-fast Bacillus.** M. VIOLA
RAE, Mountain Sanatorium, Hamilton.

**A Preliminary Report on the Effect of the Toxin of Cl. Welchii (Type
A) in the Lung of the Ox.** FRANK SCHOFIELD, Ontario Veterinary College,
Guelph.

WEDNESDAY, 2.30 P.M.**PROGRAM OF DEMONSTRATIONS AND FILMS IN THE
SCHOOL OF HYGIENE, UNIVERSITY OF TORONTO****DEMONSTRATIONS—GROUND FLOOR, SCHOOL OF HYGIENE**

An automatic bacteriological sampling machine. D. H. MATHESON,
Waterworks Department, Hamilton, Ontario.

Isolation and identification of gas gangrene anaerobes. G. B. REED and
J. H. ORR, Department of Bacteriology, Queen's University, Kingston.

Growth of fibroblasts in the presence of sulphonamides. G. B. REED
and RETA ANDERSON, Department of Bacteriology, Queen's University,
Kingston.

Mass typing of blood. D. G. GEMEROV, Department of Physiology,
University of Toronto.

**Method for demonstrating the presence of penicillin using washed
staphylococci in agar.** IGOR N. ASHESHOV, University of Western Ontario,
London.

**Salmonella isolated in the laboratory of the Department of Health
during the past five years.** HELEN CONWAY, Central Laboratory,
Department of Health of Ontario.

**Effect of the toxin of *Cl. Welchii* (type A) in the lung of the ox: demon-
stration of tissues.** FRANK SCHOFIELD, Ontario Veterinary College,
Guelph.

Agglutination of red cells by influenza virus. LAURELLA MCCLELLAND,
Connaught Laboratories, University of Toronto.

The application of a gum rubber flex pump to bacteriological problems.
RILEY ARMSTRONG, Mountain Sanatorium, and H. G. THODE, McMaster
University, Hamilton.

FILMS—ROOM 103

The following films will be shown, beginning at three o'clock:

Hookworm Disease.

Tissue Culture.

The Life History of *Entamoeba Histolytica*.

TEA WILL BE SERVED IN ROOM 54 FROM 3.45 TO 4.30 P.M.

WEDNESDAY, 6.30 P.M.

DINNER

TUDOR ROOM, MAIN MEZZANINE FLOOR

TICKETS (\$1.75) will be on sale at the registration desk in the morning and at the enquiry desk in the School of Hygiene in the afternoon. Members are asked to purchase them as early as possible.

Election of Officers.

Chairman's Address: The Changing Place of the Laboratory in Public Health. C. E. DOLMAN, Director, Division of Laboratories, Provincial Board of Health of British Columbia, Vancouver.

Film (in color): The Life History of the Rocky Mountain Wood Tick, prepared by the United States Public Health Service and shown through the kindness of Dr. R. R. Parker, Director of the Rocky Mountain Laboratory, Hamilton, Montana.

THURSDAY, DECEMBER 18th, 9.30 A.M.

PRIVATE DINING ROOM No. 9

A Sporadic Case of Food Infection due to Salmonella Stanley. J. WYLLIE, Department of Preventive Medicine, Queen's University.

The Present Status of Phage Typing of Bact. typhosum. JAMES CRAIGIE, Connaught Laboratories and School of Hygiene, University of Toronto.

The Incidence of Types of B. typhosus in Ontario. VERA CROSSLEY, Central Laboratory, Department of Health of Ontario.

Typing of B. typhosus with Bacteriophage in the Province of Quebec. J. M. DESRANLEAU, Division of Laboratories, Ministry of Health and Social Welfare of Quebec, Montreal.

The Epidemiological Aspects of B. typhosus Typing. A. R. FOLEY, Epidemiologist, Ministry of Health and Social Welfare, Quebec.

Schick Tests in Medical Students. FRED CADHAM, Director of Bacteriological Laboratory, Department of Health and Public Welfare, Manitoba.

Individual Variation in Immunity: Variance of Antitoxic Response in Guinea Pigs inoculated with Diphtheria Toxoid. DOROTHY J. STEWART and F. G. JONES, The Lilly Research Laboratories, Eli Lilly and Company, Indianapolis.

Staphylococcal Food Poisoning from Buttermilk contaminated with Staphylococci from Udder of Healthy Cow. C. E. DOLMAN and DONNA E. KERR, Division of Laboratories of the Provincial Board of Health, and V. ENMAN, Metropolitan Health Committee, Vancouver.

THURSDAY, 2.30 P.M.**PRIVATE DINING ROOM No. 9****Psittacosis Infection:**

Laboratory Diagnosis. A. L. MACNABB and S. F. PENNY, Central Laboratory, Department of Health of Ontario.

Epidemiology. W. N. TURFEL, Epidemiologist, Department of Health of Ontario.

An Epidemiological Investigation of a Family Outbreak of Poliomyelitis. J. WYLLIE, Department of Preventive Medicine, Queen's University.

Lymphocytic Choriomeningitis. CHAS. A. MITCHELL and MAX KLOTZ, Animal Diseases Research Institute, Hull, and Ottawa Civic Hospital.

Agglutination of Red Cells by Influenza Virus. LAURELLA MCCLELLAND, Connaught Laboratories, University of Toronto.

Immunity in Influenza and the Results of Vaccination. RONALD HARE, WILFRID J. AUGER and LAURELLA MCCLELLAND, Connaught Laboratories, University of Toronto.

EXHIBITS

Attention is directed to the exhibits of the Central Scientific Company, Toronto, and Difco Laboratories Incorporated, Detroit. They are located in the corridor adjoining private dining room no. 9.

SECTION OFFICERS

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BOOKS AND REPORTS

The 1941 Year Book of Public Health.

Edited by J. C. Geiger. Chicago: The Year Book Publishers, 1941. 544 pages. \$3.00.

THIS youngest member of the Year Book family will unquestionably increase in stature and in favour with all who have to do with public health. The diverse interests of the public health profession have been kept in mind in preparing this comprehensive volume. Many subjects are recognized by common consent and tradition as belonging to the public health sphere, such as child hygiene, communicable diseases, epidemiology and maternal care, while more recently the importance of nutrition and housing in the public health program has been receiving just emphasis. These and many other subjects are surveyed and, in carefully abstracted form, the cream of the year's literature is used to bring up to date international progress in the various fields.

As in the other Year Books, the generous annotations of the editor assist greatly in evaluating the material presented. If any improvement is required it is possibly only one of expansion. This is probably particularly true of the section devoted to laboratory affairs. No doubt the future will take care of all such considerations.

F. O. Wishart

Food and the Family Income. *Prepared by the Nutrition Committee of the Health Service of the Federated Agencies of Montreal. Second edition, revised. Montreal: J. B. Lippincott Company, 1941. 77 pages.*

THIS is a paper-bound booklet of 77 pages, prepared by a group of nutritionists and scientists actively concerned with the nutritional problems of low-income families. It may have been intended to be placed directly in the hands of housewives but the wisdom of this may be questioned since it is doubtful how many

mothers would have the interest or the time to read it. Undoubtedly the booklet would be of great practical value to social service workers and to others who are instructing women. An excellent, brief introduction gives the essential principles of nutrition. After an adequate consideration of budgeting, food purchasing, and meal-planning, the bulk of the booklet is devoted to descriptions of cooking methods and to recipes. These deal with the use of low-cost foods with equipment that may be available in the families for which the booklet was intended. An index to these recipes, given at the last, is very useful.

E. W. McHenry

Housing for Health. *By the Committee on the Hygiene of Housing, American Public Health Association. Published by the Committee, 310 Cedar Street, New Haven, 1941. 221 pages. \$1.00.*

MEDICAL officers of health will welcome the publication of the papers presented at the symposia on housing and health convened under the auspices of the Milbank Memorial Fund in 1939 and 1940. The volume contains contributions dealing with housing codes, housing surveys, and slum clearance; with health facilities in housing projects, problems of recreation, the use of living space, heating, lighting and noise control, and new technical possibilities in housing construction. Those who presented the papers are authorities in their respective fields. In this way, in a volume of 221 pages, not only medical officers of health but nurses, engineers and interested lay persons may obtain an authoritative picture of today's views of housing in relation to health. "The Basic Principles of Healthful Housing," prepared by the Committee on the Hygiene of Housing of the American Public Health Association, which has been so favourably received by public

health authorities on this continent, is included as an appendix. This consists of thirty basic principles, with specific requirements and suggested methods of attaining each.

R. D. Defries

The Rockefeller Foundation: A Review for 1940. By Raymond B. Fosdick. New York: The Rockefeller Foundation, 1941. 64 pages.

DEVOTED to the well-being of mankind throughout the world, the Rockefeller Foundation expended during 1940 over nine million dollars in activities carried out at home and abroad in the fields of public health (30 per cent), natural sciences (24 per cent), social sciences (16 per cent), medical sciences (14 per cent), humanities (12 per cent) and rural reconstruction in China (2 per cent). Although science knows no international boundaries the second great world war has restricted many of the research projects in foreign scientific laboratories supported by the Foundation and either terminated or perverted the Institutes in which the researches were being carried out. The humanitarian efforts to provide for refugee scholars and to assist them in finding positions in America, as well as the provision for the completion of the medical education of

British undergraduates in twenty-five medical schools of this continent, will doubtless bear fruit in years to come. The continued interest of the Foundation in promoting public health teaching and in the training of personnel is reflected in the grants given to the University of Michigan for the development of a School of Public Health, to Yale University, and to the University of Manitoba.

Of the medical sciences those relating to teaching and research in psychiatry, neurology and psychology were particularly favoured. The social sciences, especially challenged in a rapidly changing world, were also well supported. Important advances in the control of influenza, malaria and yellow fever as the result of investigations by members of the International Health Division are outlined.

In the field of natural science the giant cyclotron devised for the splitting of the atom and a 200-inch telescope are among the world's most powerful instruments, the construction of which has been possible by enormous grants from the Foundation.

The book, in short, gives a bird's-eye view of the Foundation's activities in the pursuit of knowledge.

J. Wyllie

CURRENT HEALTH LITERATURE

Industrial Health Program for the Small Plant

INDUSTRIAL medical services have their origin in the need to provide prompt and effective first-aid treatment in the plant. In addition to this humanitarian aspect, a financial incentive has been added by the compensation laws now enforced in most of the states.

The economy resulting from the reduction in lost time influenced the development of medical programs in the larger plants. Such programs vary enormously from the minimum of equipment to a service complete with hospital, laboratory and a highly developed safety education program.

In small plants the needs are essentially the same, but obviously their capabilities are limited. Some states provide by law the type of medical care to be supplied by employer but it is desirable that plants should exceed these requirements as far as they can afford.

In this article the author discusses the provision of adequate protection for the health of workers in small plants. The first-aid kit is considered in detail as regards location, contents and upkeep, inspection and personnel responsible for it. It is stressed that in every plant one or two workers can be found, who, if encouraged, would take a regular course in first-aid and be prepared to handle cases in accordance with accepted principles. Desirable supplementary equipment also is discussed.

The requirements of a first-aid room are given, together with a sketch of one of minimal size. In some plants special conditions necessitate special requirements. The need of suitable personnel is stressed and also the need of keeping medical records.

The author also discusses co-operative first-aid efforts on the part of small plants as practised in a few places. Co-operation can be carried out with one another and with avail-

able government or private agencies. In many states any plant can have the service of the technical staff of the Division of Industrial Hygiene. Such service includes complete industrial hygiene surveys, physical examination of the workers, X-ray examination of lungs, dust counts, and chemical air analysis. Other agencies such as insurance companies, safety councils and manufacturers' associations are also available to render such assistance.

Leonard Greenburg, Protecting Plant Manpower. U.S. Department of Labor, Special Bulletin No. 3, Washington, 1941. Pp. 51-61.

Personal Respiratory Protection

IN the control of accidents and occupational affections caused by breathing contaminated air, primary consideration should be given to prevent the air from being contaminated. However, in spite of the best efforts to accomplish this, potential exposure to harmful constituents in the air breathed will exist in some situations. To meet these conditions personal respiratory protection equipment has been designed and is available commercially. The protection is afforded by providing means for purifying the air breathed or by providing means for supplying respirable air from a source of supply independent of the working environment.

Equipment is available for both non-emergency and emergency situations. For non-emergency situations the primary requisite is adequate protection with a minimum of inconvenience, a maximum of comfort and simplicity in design and use; for emergency situations the important requisite is complete respiratory protection with safety provisions against even momentary failure of the device.

In this article the author discusses the following types of available equipment: air-purifying types of respiratory protectors such as canister gas masks, chemical cartridge respirators and mechanical filter respirators; sup-

plied-air respirators as hose masks, air-line respirators, abrasive blasting and metal spraying respirators, and paint-spray hoods. He also discusses the uses and limitations of the various types, and some of the factors involved in their care and maintenance.

In order to insure that all the devices used for individual respiratory protection are satisfactory and safe, the U.S. Bureau of Mines has prepared specifications that embody the minimum design and performance requirements that a respirator must meet in order to be considered safe to use for prescribed purposes. The Bureau of Mines also examines and tests respirators for conformity to these minimum requirements, and all approved devices and important replaceable parts of such are so marked. As a further aid it issues lists of devices which have met the requirements. Today the majority of industries that seriously consider respiratory protection adopt equipment that is approved.

W. P. Yabt. Protecting Plant Manpower. U.S. Department of Labor, Special Bulletin No. 3, Washington, 1941. Pp. 27-43.

Multiple Cases of Tonsillectomy and Poliomyelitis

FIVE children in one family, aged 11, 9, 8, 7 and 6 years underwent tonsillectomy and adenoidectomy on August 22 and went home the same day. The operations were performed under strict aseptic precautions. On September 3 symptoms of poliomyelitis appeared in three of the children and by September 5 the other two children also showed symptoms. Bulbar involvement developed in all five, of whom three died. One appeared to be recovering and one remained critically ill at time of writing. The parents and a child of 2½ years, who was not operated on, remained symptom-free.

The source of these infections is not clear. That it was introduced at the hospital is highly improbable. The virus could have been present at the time of operation or it might have been introduced later. The incu-

bation period of twelve days makes the latter more likely. No cases of poliomyelitis had occurred in the neighbourhood but from August 28 to September 2 the stricken children had played with two other children who had been visiting nearby and these visiting children lived directly across the street from a patient who had died of bulbar poliomyelitis on August 4, 1941. Examinations of the stools of the asymptomatic child and parents for the presence of virus is being carried out.

Carl E. Krill and John A. Loomey, J.A.M.A., 1941, 117: 1013.

False Positive Serologic Reactions for Syphilis due to Smallpox Vaccinations (Vaccinia)

THIS paper deals primarily with the occurrence of false positive serologic reactions for syphilis following vaccination against smallpox. Other problems related to the occurrence of false positives are however alluded to both in the text and the appended discussion. In this study blood was drawn from a group of youths, not previously vaccinated, at the time of inoculation and then at intervals thereafter. The tests used were the Kolmer, Wassermann, Kline diagnostic, Hinton and Mazzini tests. In addition the Eagle and the standard Kahn tests were used on a great many.

Primary vaccinia developed in 267 individuals of whom 4 were unsatisfactory for further investigation. Of the remaining 263, who had negative tests at the time of inoculation, 43 (16 per cent) reacted to one or more of the serologic procedures. In the majority of these the reactions were only weakly positive but in 6 a four-plus reaction was obtained. Strangely enough the Kolmer test was the most specific but the four-plus reactions were most marked with it. Persistence of the positive state continued for as long as two months in many of the persons tested and for four months in a few.

F. W. Lynch and others, J.A.M.A., 1941, 117: 591.

Membership

IN THE CANADIAN PUBLIC HEALTH ASSOCIATION

- Active membership is limited to those professionally engaged in public health work in Canada.
- Associate membership is open to others in Canada and elsewhere who are interested in public health and preventive medicine.
- The membership fee, including subscription for the CANADIAN PUBLIC HEALTH JOURNAL, is \$2.00 a year in Canada, \$2.50 in Great Britain and the United States, and \$3.00 in other countries. Fees are payable in advance.
- The membership year is January 1st to December 31st. Those making application during the first six months of the year will be entered from the first of the year and will be sent copies of the Journal from January. Those applying after June 30th will be billed for the six months July to December of the current year and for the following year. They will receive copies of the Journal from July.
- Affiliation may be made with one or more of the Sections of the Association: Child Hygiene, Industrial Hygiene, Laboratory, Mental Hygiene, Public Health Education, Public Health Engineering, Public Health Nursing, Social Hygiene, Vital Statistics and Epidemiology.

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CANADIAN PUBLIC HEALTH ASSOCIATION

111 AVENUE ROAD, TORONTO, ONTARIO

Shorter days mean longer odds —against you!

Winter invariably brings heavier tolls of traffic accidents—there are usually more than one and a half times as many accidents in December as in June.

Shorter days mean more hours of darkness. These shorter days bring with them stormy weather and other seasonal dangers in driving your car.

These abnormal burdens are placed on drivers every Winter—and particularly this Winter because our rapidly accelerating war effort is putting more and more men and cars on the roads.

Increased dangers should be balanced by increased caution. Those drivers and business organizations who, in co-operation with the Oil Controller, are using their cars only for essential transportation in order to conserve gasoline for the use of our armed forces, will keep in mind the following suggestions throughout the winter.

The careful driver makes sure that his lighting equipment is adequate and that it is properly adjusted for longer hours

of darkness, snow, sleet, and fog; also that windshield wipers and defrosters are working effectively.

The careful driver also makes up his mind to travel habitually at speeds that are reduced in conformity with road conditions throughout this season.

He remembers to be especially wary of carbon monoxide gas hazards in garages. If his car is a closed model, particularly an old one, he will have it checked for leakage.

His chances of skidding are reduced by having brakes properly adjusted, by using tire chains on snow, slush, ice. The safe driver knows and practices safe driving technique on slippery surfaces. He is always on the alert for unexpected icy spots.

He leaves more room than usual between himself and the car ahead, is more cautious than ever about passing cars when approaching hills or curves. On hills, he watches out for children on sleds.

Metropolitan Life Insurance Company

(A MUTUAL COMPANY)

NEW YORK

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Chairman of the Board



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President

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